Lesson #2: Basic Factoring Review

Learning Targets:

i) Factoring techniques for differences of squares

ii) Removing a GCF

iii) Factoring techniques for trinomials

iv) Factoring 4-term polynomials by grouping

v) Decomposition

Differences of squares:

a) $x^2 - 36$

$(x+6)(x-6)$

b) $49 - 9c^2$

$(7+3c)(7-3c)$

c) $b^2 - \frac{1}{9}$

$(b+\frac{1}{3})(b-\frac{1}{3})$

d) $a^2 - 1$

$(a+1)(a-1)$

Common Factors and Related Issues

It is customary to begin factoring by removing the GCF.

$$x^5y^2 - 25x^3y^4$$

gcf = x^3y^2

$$x^3y^2(x^2 - 25y^2)$$

$$x^3y^2(x + 5y)(x - 5y)$$

Guess and Check Note x^2 term has a coefficient equal to 1.

Factor the "simple" trinomial:

add ← mult

$$x^2 + 6x + 8$$

$(x+4)(x+2)$

Factor the "simple" trinomial:

$$x^2 - 9xy + 14y^2$$

$(x - 7y)(x - 2y)$

Factor the trinomial squares:

$x^2 - 10x + 25$

$(x - 5)^2$

$x^2 + 8xy + 16y^2$

$(x + 4y)^2$

Factor the following by grouping:

$$6a - 3b + 2ad - bd$$

$3(2a-b)+d(2a-b)$

$(2a-b)(3+d)$

Decomposition

Factor the following trinomial:

Note x^2 term has a coefficient greater than 1.

$$9x^2 + 6x - 8$$

-72

$-6x + 12x$

$9x^2 - 6x + 12x - 8$

$3x(3x-2) + 4(3x-2)$

$(3x-2)(3x+4)$

Assignment:

Handout - #1 – 7 (all)